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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/730,246	12/05/2000	Jathan D. Edwards	53868US02	7896

7590 05/30/2003

Attention: Eric D. Levinson
Imation Corp.
Legal Affairs
P.O. Box 64898
St. Paul, MN 55164-0898

EXAMINER

ANGEBRANDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 05/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

5A

Office Action Summary	Application No.	Applicant(s)	
	09/730,246	EDWARDS, JATHAN D.	
	Examiner	Art Unit	
	Martin J Angebrannndt	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 37,40 51 and 55 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The limitation of the track pitch of the desired replica being less than 1.6 times the laser spot size is not found in the specification as originally filed.

The limitation describing the flat master groove bottoms are greater than 35 % of the track pitch is not found in the specification as originally filed.

In claim 47, the limitation concerning "transducer-detectable surface variations" is not found in the specification as originally filed.

This is new matter. If the applicant cannot find a basis for the language, then it must be removed in the next response.

3. Please insert proper reference to the co-pending application on page 19 at line 2 of the instant specification.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 36-53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

please replace "photoresistive" with - - photosensitive- - in the first line of claims 37 and 50.

In claim 47, the limitation concerning "transducer-detectable surface variations" it is not clear if this relates to pits, tracking data or embraces any unevenness.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 36-42,45-47,50-52 and 54-55 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Sugimoto JP 01-023440 (aka JP 64-023440).

Sugimoto JP 01-023440 teaches with respect to figure 1, laser exposure of a resist, development, formation of a stamper and formation of a polycarbonate substrate using the stamper. The grooves formed by the laser exposure are wider than the remaining areas of resist as shown in figure 1c. On page 3, the groove formed on the photosensitive master is 1.1 microns wide and the pitch is 1.6 microns. (page 3, upper left column). 1.6 (pitch) divided by 1.1 (groove

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width) is 1.45, which is less than 1.6. Describing the prior art (figure 4), a first (4d,4e) and second (4f,4g) stamper are formed, and then the substrate (4h) is formed from the second stamper. The reproduction characteristics of the media are disclosed in the upper right hand column of page 3. Please note the resolution of the exposure (NA-0.93) on page 2 in the lower left column.

The claims are directed to the formation of the pattern in the photoresist of the master. The language concerning a replica is considered intended use until actively recited. The examiner notes that only grooves and lands need to be formed and that either conformation (direct or inverse) could be used as the substrate. With the width of the grooves being 1.1 microns and the thickness of the resist on the order of a micron or less, then examiner holds that the width of the substrate exposed is more than 0.8 microns.

9. Claims 36-43,44-52 and 54-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugimoto JP 01-023440, in view of Kashiwagi et al. EP 0418897 and Folger et al. '978.

Kashiwagi et al. EP 0418897 teaches the size of the grooves is limited by the ability to decrease the spot diameter of the laser beam and that this is limited by the numerical aperture and the wavelength of the laser light (1/24-42). To reduce the size of the grooves, the photoresist is exposed and developed to produce a groove of a certain width (W_1) and then etching is performed to produce grooves of a smaller width (W_3) in an intermediate layer. (figures 1c & 1d). A stamper (9,10) is made from this surface and used to form a second stamper (11) and a third stamper (12), which is then used to produce a optical disk substrate with wide lands and a narrow groove.

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Folger et al. '978 teaches the formation of optical devices (phase gratings) where the first and second generation copies are formed using a cast resin. (6/42-7/28 and 7/29-8/35) Subsequent replicas useful in stamping are formed through electrodeposition/electroforming and the metal separates easily from the plastic (8/60-61) The passivation of the nickel surface with dichromate to allow another nickel master to be formed thereon, but allowing for easy removal is disclosed. (8/36-9/5). Note that both odd and even duplicates are used to stamp the desired images. It is just a matter of polarity of the original relative to the desired article.

It would have been obvious to modify the process of Sugimoto JP 01-023440 by forming a second stamper and then the optical disk substrate to produce the high density optical recording media substrates of Kashiwagi et al. EP 0418897 without the need for the etching step with a reasonable expectation of success as the number of techniques is reduced and the teachings of Folger et al. '978 concerning the use of either odd or even numbered stampers to form substrate in the polymeric material.

10. Claims 36-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugimoto JP 01-023440, in view of Kashiwagi et al. EP 0418897 and Folger et al. '978 combined with Daecher et al. '829.

Daecher et al. '829 teach the width and pitch of the spiral groove formed in the substrate may be 0.1-10 microns dependent upon the particular medium.

In addition to the basis provided above, the examiner holds that it would have been obvious to use modify the invention of Sugimoto JP 01-023440, in view of Kashiwagi et al. EP 0418897 and Folger et al. '978 for higher density media by decreasing the pitch of the media (thereby increasing the number of tracks and the amount of data able to be stored) by reducing

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the pitch within the ranges taught by Daecher et al. '829 to gain the advantage of increased storage capacity.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebranndt whose telephone number is 703-308-4397.

The examiner can normally be reached on Mondays-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Martin J Angebranndt
Primary Examiner
Art Unit 1756

May 27, 2003